

Chemical and Structural Dissection of the O-GlcNAc modification: implications for diabetes and neurodegeneration

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The intracellular, dynamic, O-GlcNAc modification has widespread interest in the field of glycobiology not least because it acts reciprocally with phosphorylation implicating it in many cellular events. We have been probing the 3-D structures of the enzymes that both install¹ and remove^{2,3} this modification and have used structure, in harness with organic approaches, to establish chemical tools to both probe the role of O-GlcNAc in type II diabetes⁴ and to develop agents with potential against tau-dependent neurodegeneration⁵. These structural approaches have benefitted from the ability to screen and collect data from many potential ligand complexes, remotely, benefitting from recent developments in beamline automation.

References

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